CLAIMS:

1. A spatio-temporal filter unit (100), provided with a sigma filter (112), to reduce the noise in images, characterized in that the sigma filter (112) comprises one filter kernel (107) designed to operate on pixels from both a current image and from the output (118) of the spatio-temporal filter unit, being a temporally recursive filtered image.

2. A spatio-temporal filter unit (100) as claimed in Claim 1, characterized in that it comprises:
- a spatial pixel buffer (104) to store pixels of the current image;
- a spatial pixel selector (106) to select pixels from the spatial pixel buffer (104);
- a temporal pixel buffer (108) to buffer pixels from the output (118) of the spatio-temporal filter unit, being a temporally recursive filtered image;
- a temporal pixel selector (110) to select pixels from the temporal pixel buffer (108); and
- the sigma filter (112) comprising one filter kernel (107) designed to operate on the pixels from both the spatial pixel selector (106) and the temporal pixel selector (110).

3. A spatio-temporal filter unit (100) as claimed in Claim 2, characterized in that it comprises an adaptive sigma filter (112).

4. A spatio-temporal filter unit (100) as claimed in Claim 3, characterized in that of at least one of the pixel selectors, being the temporal pixel selector (110) and the spatial pixel selector (106), the aperture can be adjusted.

5. A spatio-temporal filter unit (100) as claimed in Claim 4, characterized in that at least one of the pixel selectors, being the temporal pixel selector (110) and the spatial pixel selector (106), is designed such that the distance between the selected pixels is adjustable.

6. A spatio-temporal filter unit (200) as claimed in Claim 4, characterized in that it comprises a motion detector (224) designed to detect motion and to control the aperture of the temporal pixel selector (210) based on detected motion.

7. A spatio-temporal filter unit (200) as claimed in Claim 4, characterized in that it comprises a motion estimator (222) designed to supply motion vectors and to control the position of the temporal pixel selector (210) related to the temporal pixel buffer (208), based on the motion vectors supplied by the motion estimator (222).

8. A spatio-temporal filter unit (200) as claimed in Claim 4, characterized in that it comprises a noise estimator (220) designed to estimate a noise level in the current image and to control the aperture of at least one of the pixel selectors, being the temporal pixel selector (210) and the spatial pixel selector (206), based on the estimated noise level.

9. A spatio-temporal filter unit (200) as claimed in Claim 4, characterized in that it comprises a noise estimator (220) designed to estimate a noise level in the current image and to control thresholds of the adaptive sigma filter (212), based on the estimated noise level.

10. An image display apparatus (300) comprising:
- receiving means (302) for receiving a signal representing images;
- a display device (306) for displaying the images; and
- a spatio-temporal filter unit (100), provided with a sigma filter (112), to reduce the noise in the images, characterized in the sigma filter (112) comprises one filter kernel (107) designed to operate on pixels from both a current image and from the output (118) of the spatio-temporal filter unit, being a temporally recursive filtered image.

11. An image display apparatus (300) comprising:
- receiving means (302) for receiving a signal representing images;
- a display device (306) for displaying the images; and
- a spatio-temporal filter unit (100), provided with a sigma filter (112), to reduce the noise in the images, characterized in that it comprises:
- a spatial pixel buffer (104) to store pixels of a current image;
- a spatial pixel selector (106) to select pixels from the spatial pixel buffer (104);
- a temporal pixel buffer (108) to buffer pixels from the output (118) of the spatio-temporal filter unit, being a temporally recursive filtered image;
- a temporal pixel selector (110) to select pixels from the temporal pixel buffer (108); and

- the sigma filter (112), being an adaptive sigma filter comprising one filter kernel (107) designed to operate on the pixels from both the spatial pixel selector (106) and the temporal pixel selector (110).